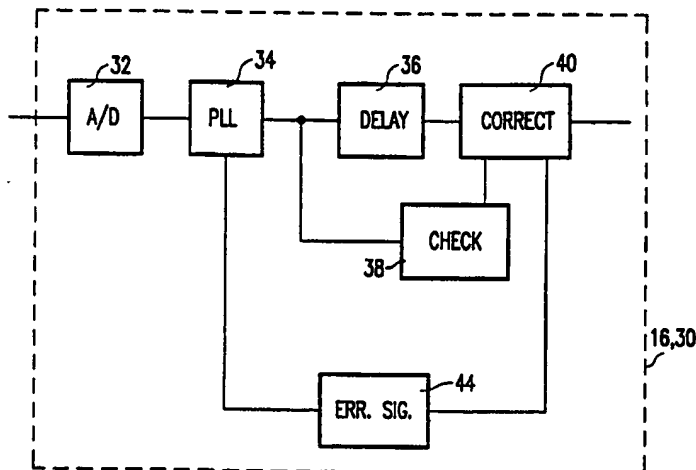




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>H04L 1/20, H03M 13/00</b>		<b>A3</b>	(11) International Publication Number: <b>WO 98/27681</b>
			(43) International Publication Date: 25 June 1998 (25.06.98)
(21) International Application Number: <b>PCT/IB97/01532</b>		(81) Designated States: CN, JP, KR, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 8 December 1997 (08.12.97)			
(30) Priority Data: 96203602.6 18 December 1996 (18.12.96) EP (34) Countries for which the regional or international application was filed: AT et al.		<b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(71) Applicant: PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).		(88) Date of publication of the international search report: 20 August 1998 (20.08.98)	
(71) Applicant (for SE only): PHILIPS NORDEN AB [SE/SE]; Kottbygatan 7, Kista, S-164 85 Stockholm (SE).			
(72) Inventor: VAN DEN ENDEN, Gijsbert, Joseph; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).			
(74) Agent: DEGUELLE, Wilhelmus, H., G.; Internationaal Octrooibureau B.V., P.O. Box 220, NL-5600 AE Eindhoven (NL).			

(54) Title: TRANSMISSION SYSTEM AND RECORDING SYSTEM HAVING A SIMPLIFIED SYMBOL DETECTOR



## (57) Abstract

In a transmission system or recording system, a detector (16, 30) using quality measures indicating the quality of the received signal is applied. In contradistinction with the prior art system the quality measure comprises the deviation of the position of transitions in the input signal from the nominal positions of said transitions. The advantage of using this type of quality measure is that the required information for determining it, is already available within the PLL (34) needed for clock recovery.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 97/01532

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H04L 1/20, H03M 13/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H04L, H03M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9613905 A1 (PHILIPS ELECTRONICS N.V. ET AL), 9 May 1996 (09.05.96), cited in the application --	1-11
A	US 4885756 A (SYLVAIN FONTANES ET AL), 5 December 1989 (05.12.89), abstract --	1-11
A	US 5295128 A (ROBERT A. HUTCHINS ET AL), 15 March 1994 (15.03.94), column 10, line 1 - line 15 -----	1-11

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

26 June 1998

Date of mailing of the international search report

30 -06- 1998

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Bengt Romedahl

Telephone No. +46 8 782 25 00

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

09/06/98

International application No.

PCT/IB 97/01532

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9613905	A1	09/05/96	CN	1141100 A	22/01/97
				CZ	9601919 A	11/06/97
				EP	0737384 A	16/10/96
				JP	9507985 T	12/08/97
US	4885756	A	05/12/89	CA	1298627 A	07/04/92
				DE	3873820 A	24/09/92
				EP	0291979 A,B	23/11/88
				FR	2615675 A,B	25/11/88
US	5295128	A	15/03/94	US	5461638 A	24/10/95
				US	5461642 A	24/10/95